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ATTORNEY DOCKET NO: AMKOR-036C
TITLE: NEAR CHIP SIZE SEMICONDUCTOR PACKAGE

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PTO/SB/21 (09-04)
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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Total Number of Pages in This Submission

Application Number	10/662,248
Filing Date	09/15/2003
First Named Inventor	Sean T. Crowley
Art Unit	2814
Examiner Name	Thao X. Le
Attorney Docket Number	AMKOR-036C

ENCLOSURES *(Check all that apply)*

- [X] Fee Transmittal Form
  - [X] Fee Attached
- [ ] Amendment/Reply
  - [ ] After Final
  - [ ] Affidavits/declaration(s)
- [ ] Extension of Time Request
- [ ] Express Abandonment Request
- [ ] Information Disclosure Statement
- [ ] Certified Copy of Priority Document(s)
- [ ] Reply to Missing Parts/ Incomplete Application
  - [ ] Reply to Missing Parts under 37 CFR 1.52 or 1.53
- [ ] Drawing(s)
- [ ] Licensing-related Papers
- [ ] Petition
- [ ] Petition to Convert to a Provisional Application
- [ ] Power of Attorney, Revocation Change of Correspondence Address
- [ ] Terminal Disclaimer
- [ ] Request for Refund
- [ ] CD, Number of CD(s) _____
  - [ ] Landscape Table on CD
- [ ] After Allowance Communication to TC
- [ ] Appeal Communication to Board of Appeals and Interferences
- [X] Appeal Communication to TC **(Appeal Notice, Brief, Reply Brief)**
- [ ] Proprietary Information
- [ ] Status Letter
- [X] Other Enclosure(s) (please Identify below):

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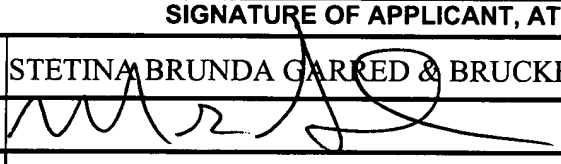
Signature			
Printed name	Mark B. Garred		
Date	6/20/05	Reg. No.	34,823

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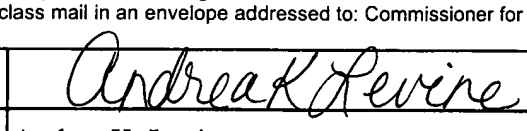
Signature			
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Effective on 12/08/2004.
Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).

FEE TRANSMITTAL
For FY 2005

☐ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT ($) $500.00

Complete if Known	
Application Number	10/662,248
Filing Date	09/15/2003
First Named Inventor	Sean T. Crowley
Examiner Name	Thao X Le
Art Unit	2814
Attorney Docket No.	AMKOR-036C

METHOD OF PAYMENT (check all that apply)

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☐ Deposit Account Deposit Account Number: 19-4330 Deposit Account Name: Stetina Brunda Garred & Brucker

For the above-identified deposit account, the Director is hereby authorized to: (check all that apply)

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FEE CALCULATION

1. BASIC FILING, SEARCH, AND EXAMINATION FEES

	FILING FEES		SEARCH FEES		EXAMINATION FEES		
		Small Entity		Small Entity		Small Entity	
Application Type	Fee ($)	Fee ($)	Fee ($)	Fee ($)	Fee ($)	Fee ($)	Fees Paid ($)
Utility	300	150	500	250	200	100	
Design	200	100	100	50	130	65	
Plant	200	100	300	150	160	80	
Reissue	300	150	500	250	600	300	
Provisional	200	100	0	0	0	0	

2. EXCESS CLAIM FEES

Fee Description	Fee ($)	Small Entity Fee ($)
Each claim over 20 or, for Reissues, each claim over 20 and more than in the original patent	50	25
Each independent claim over 3 or, for Reissues, each independent claim more than in the original patent	200	100
Multiple dependent claims	360	180

Total Claims	Extra Claims	Fee ($)	Fee Paid ($)
_____ - 20 or HP =	_____	x _____	= _____

HP = highest number of total claims paid for, if greater than 20

Indep. Claims	Extra Claims	Fee ($)	Fee Paid ($)
_____ - 3 or HP =	_____	x _____	= _____

HP = highest number of independent claims paid for, if greater than 3

Multiple Dependent Claims	
Fee ($)	Fee Paid ($)
_____	_____

3. APPLICATION SIZE FEE

If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets	Extra Sheets	Number of each additional 50 or fraction thereof	Fee ($)	Fee Paid ($)
_____ - 100 =	_____	/ 50 = _____ (round up to a whole number)	x 250.00	= 0.00

4. OTHER FEE(S)

	Fees Paid ($)
Non-English Specification, $130 fee (no small entity discount)	
Other: Appeal Brief	500.00

SUBMITTED BY

Signature		Registration No. (Attorney/Agent)	34,823	Telephone	(949) 855-1246
Name (Print/Type)	Mark B. Garred			Date	6/22/05

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTEFERENCES

Appellants:	Sean T. Crowley et al.	Confirmation No.	2413
Serial No.:	10/662,248	Art Unit:	2814
Filed:	09/15/2003	Examiner:	Thao X. Le
For:	Near Chip Size Semiconductor Package		

APPEAL BRIEF UNDER 37 C.F.R. § 1.192

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir/Madam:

Appellant [hereinafter "Appellant"], in the above-captioned patent application, has appealed from the Examiner's final rejection of Claims 14-31 as set forth in the Final Office Action of January 7, 2005.

A Notice of Appeal in response to the Final Office Action was filed on April 20, 2005. The Appeal Brief is being submitted in triplicate pursuant to 37 C.F.R § 1.192(a) with the requisite fee under 37 C.F.R. § 1.17(c) in the amount of $330. An ORAL HEARING IS NOT REQUESTED.

If for any reason the necessary fee is not associated with this file, the Commissioner is authorized to charge the appropriate fee for the Appeal Brief and/or any necessary extension of time fees to Deposit Account Number 19-4330.

I. REAL PARTY IN INTEREST

The real party in interest is Amkor Technology, Inc. by assignment recorded in the U.S. Patent and Trademark Office on March 21, 2001 at Reel 011638, Frame 0880.

II. RELATED APPEALS AND INTERFERENCES

No related appeals and/or interferences are pending.

III. STATUS OF CLAIMS

Claims 14-31, the only claims pending in the subject application, stand finally rejected (see Appendix entitled "CLAIMS ON APPEAL").

IV. STATUS OF AMENDMENTS AFTER FINAL

There are no un-entered amendments.

V. SUMMARY OF INVENTION

The present invention relates to semiconductor packages (*for example, See Figure 5, ref. no. 80 and specification p. 10, lines 13-18 and p. 11; See also Figure 7, ref. no. 90 and specification p. 12; See also Figure 8, ref. no. 100 and specification p. 13, lines 5-10, 25-29 and p. 14*) that can accept semiconductor chips 82, 91, 102 of various sizes without having to change the footprint of the carrier package. More particularly, the present invention may comprise a leadframe (*for example See Figure 6, ref. no. 85 and specification p. 10, line 19 through p. 11, line 6; See also Figure 9, ref. no. 105 and specification p. 13, lines 11-24*), a semiconductor chip 82, 91, 102 attached and electrically connected to the leadframe 85, 105,

and a sealing material 84, 94, 104 covering the semiconductor chip 82, 91, 102 and portions of the leadframe 85, 105. The leadframe 85, 105 has a plurality of leads 81, 101 with each one of the plurality of leads having a top side 87, 107 and a bottom side 86. The top sides 87, 107 of the leads 81, 101 define generally co-planar surfaces for supporting the semiconductor chip 82, 91, 102. Because the semiconductor chip 82, 91, 102 rests on the co-planar and unobstructed surfaces defined by the top sides 87, 107 of the leads 81, 101, semiconductor chips of different sizes can be included in the semiconductor package 80, 90, 100 without having to change the footprint of the semiconductor package 80, 90, 100. The sealing material 84, 94, 104 partially encapsulates the leadframe 85, 105 such that the bottom sides of the leads 81, 101 are exposed in the resultant semiconductor package 80, 90 100.

VI. ISSUES

(A). Whether Claims 24-31 are improperly rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,929,513 to Asano et al. [hereinafter "ASANO"]; and

(B). Whether Claims 14-23 are improperly rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,157,074 to Lee [hereinafter "LEE"] in view of U.S. Patent 6,414,385 to Huang et al. [hereinafter "HUANG"].

VII. GROUPING OF CLAIMS

For the purpose of this appeal, Appellant submits that:

(A). Dependent Claims 15-23 stand or fall with underlying independent Claim 14;

(B). Dependent Claims 25-27 stand or fall with underlying independent Claim 24; and

(C). Dependent Claims 29-31 stand or fall with underlying independent Claim 28.

VIII. ARGUMENTS

Traversal of Rejection under 35 U.S.C. § 102(b)

(A). The rejection of Claims 24-31 under 35 U.S.C. § 102(b) as being anticipated by ASANO is in error, the rejection should be reversed, and the subject application should be remanded to the Examiner with instructions to allow Claims 24-31.

The Examiner's Rejection of Independent Claims 24 and 28

The Examiner submits in the Final Office Action of January 7, 2005 that ASANO discloses a lead frame 32 (Fig. 3A-3C) comprising a peripheral tie bar 43 (col. 5, line 43), and a plurality of leads 33 (Fig. B-C, col. 5, line 16) extending from tie bar 43 (Fig. 3B), in isolation from each other and segregated into two sets (Fig. 3A), the leads of each set being linearly aligned and arranged in spaced, generally parallel relation to each other such that each of the leads of one set extends in opposed relation to a respective one of the leads of the remaining set, each of the leads defining opposed, generally planar top and bottom sides; an inner end 33a (col. 5, line 29), and a notched surface (step portion), which is disposed in opposed relation to the bottom side and extends to the inner end 33a (Fig. 3C), each of the leads 33 having a first thickness between the top and bottom sides which exceeds a second thickness between the bottom side and the notched surface (Fig. 3C).

A Review of ASANO

ASANO discloses a leadframe 32 comprising a plurality of inner leads 33 and outer leads 34. The inner and outer leads 33, 34 extend and are connected to a common tie bar 43, with such tie bar 43 defining the point of transition from each outer lead 34 to a respective one of the inner leads 33. Each inner lead 33 has an angled configuration. As seen in Figures 3A and 3B of the ASANO reference, the outer and inner leads 34, 33 are segregated into four separate sets, with the inner ends of the inner leads 33 of each set each being integrally connected to a common connecting portion 44. Additionally, as seen in Figure 3C, a portion of the top surface of each inner lead 33 is recessed so as to define a thin plate portion 33a which extends to the corresponding connecting portion 44. As is shown in Figures 4 and 6 of ASANO, the inner leads 33 of the leadframe 32 are secured to a heat spreader 35 through the use of an adhesive 35a. A semiconductor chip 36 is mounted to a central portion of the heat spreader 35 and bonded to the thin plate portions 33a of the inner leads 33 through the use of wires 38.

Appellant's Independent Claims 24 and 28

Appellant's independent Claims 24 and 28 recite, *inter alia*, [a] ***leadframe*** comprising: a peripheral tie bar; and a plurality of leads extending from the tie bar *in isolation from each other* and segregated into two sets, *the leads of each set being linearly aligned and arranged in spaced, generally parallel relation to each other such that each of the leads of one set extends in opposed relation to a respective one of the leads of the remaining set, . . .* Appellant respectfully submits that the aforementioned features recited in independent Claims 24 and 28 are not taught by ASANO.

Claims 24 and 28 are each drawn to leadframe – not a post-singulation subassembly of a semiconductor package.

In the subject Office Action, the Examiner correlates the tie bar 43 shown in Figures 3A and 3B of the ASANO reference to the tie bar recited in Claims 24 and 28, and further correlates the inner leads 33 of the ASANO reference to the leads recited in Claims 24 and 28. Initially, Appellant notes that the inner leads 33 of ASANO, though extending from the tie bar 43, *do not extend from the tie bar 43 in isolation from each other*. Rather, the explicit teaching of ASANO is that within the leadframe 32, the inner ends of the inner leads 33 of each set *are each integrally connected to a respective, common connecting portion 44, and are thus clearly do not extend in isolation from each other*.

In response to Appellant's aforementioned position, the Examiner submits in the Advisory Action of April 6, 2005, that the Appellant's arguments that the inner leads 33 of ASANO are each integrally connected to a common connecting portion 44 are not persuasive because the common connecting portion 44 is being removed from the structure (Fig. 5, step 2 and col. 6, lines 50-51). In this regard, the Examiner submits that in the "final structure", the leads 33 of ASANO do not have the common connecting portion, and thus, it reads on the claim limitations, i.e. "isolation from each other".

Appellant respectfully disagrees. In particular, Appellant submits that the when the ASANO leadframe 32 is cut to facilitate the removal of the connecting portions 44, the leadframe 32 is effectively converted into a portion of a semiconductor package subassembly and is no longer a leadframe per se. And since, as already noted, independent Claims 24 and 28 are each drawn to a ***leadframe***, not a subassembly comprising a plurality of leads 33 affixed to a die pad or heat spreader 35, Appellant respectfully submits that the Examiner's reasoning is flawed.

The Appellant finds support for its position in the specification of ASANO (see col. 6, lines 40-60) which states that the inner leads 33 of the lead frame 32 are secured on the heat spreader 35 through an adhesive 35a as shown in Fig. 6 (Step S1). At this moment, the connecting portions 44 are arranged around the heat spreader 35. On the heat spreader 35, the connecting portions 44 of the inner leads 33 are cut and removed, for example, by exposing laser rays thereon (Step S2). Thus, from the ASANO specification, it can be seen that when the connecting portions 44 are severed, the leadframe 32 has already been attached to the heat spreader 35. Appellant submits that at this stage in the process, since the ASANO leadframe 32 has been attached to the heat spreader 35, the combination of both components is no longer a "leadframe" per se, but rather a subassembly of a semiconductor package.

Therefore, since independent Claims 24 and 28 are each drawn to only a "leadframe", and not to a semiconductor package including a leadframe as part of a subassembly thereof, Appellant respectfully submits that it is inappropriate to read a claim limited to a leadframe per se to a semiconductor package sub-assembly which comprises a leadframe in combination with a heat spreader/die pad. And even though Claims 24 and 28 include the term "comprising", Appellant submits that the preamble of both Claims 24 and 28 is drawn explicitly to only a leadframe, not *an assembly* which includes a heat spreader/die pad attached to a severed leadframe. Indeed, it should be noted that the claims on appeal also include claims (i.e., Claims 14-23) which are drawn specifically to a semiconductor package, as opposed to a leadframe.

The aforementioned position is supported by case law which stands for the notion that the preamble "breathes life into the claims". That is to say, any terminology in the preamble that limits the structure of the claimed invention must be treated as the claimed

limitation. See, e.g., *Corning Glass Works v. Sumitomo Elec. U.S.A., Inc.*, 868 F.2d 1251, 1257, 9 USPQ2d 1962, 1966 (Fed. Cir. 1989) (The determination of whether preamble recitations are structural limitations can be resolved only on review of the entirety of the application "to gain an understanding of what the inventors actually invented and intended to encompass by the claim."; *Pac-Tec Inc. v. Amerace Corp.*, 903 F.2d 796, 801 14 USPQ2d 1871, 1876 (Fed. Cir. 1990) (determining that preamble language that constitutes a structural limitation is actually part of the claimed invention). "[A]" claim preamble has the import that the claim as a whole suggests for it." *Bell Communications Research, Inc. v. Vitalink Communications Corp.*, 55 F.3d 615, 620, 34 USPQ2d 1816, 1820 (Fed. Cir. 1995). "If the claim preamble, when read in the context of the entire claim, recites limitations of the claim, or, if the claim preamble is 'necessary to give life, meaning, and validity' to the claim, then the claim preamble should be construed as if in the balance of the claim." *Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1305, 51 USPQ2d 1161, 1165-66 (Fed. Cir. 1999). Hence, Appellant submits that because the Examiner uses a semiconductor sub-assembly teaching from ASANO which is not inherently limited to only a leadframe, such a proposed rejection is improper.

Therefore, Appellant submits that the Examiner has failed to establish an adequate evidentiary basis to support an anticipation rejection under 35 U.S.C § 102(b), and that the current rejection of independent Claims 24 and 28 is improper for the aforementioned reason and should be withdrawn.

Moreover, in ASANO, the inner leads of each set are not linearly aligned and arranged in spaced, generally parallel relation to each other.

Moreover, in the ASANO reference, the inner leads 33 of each set are not linearly aligned and arranged in spaced, generally parallel relation to each other such that each of the inner leads 33 of one set extends in opposed relation to a respective one of the inner leads 33 of another set. Rather, as is readily apparent from Figures 3A and 3B of ASANO, though the inner leads 33 are segregated into multiple sets, ***none of the inner leads 33 of any set extend in spaced, generally parallel relation to each other. Instead, the inner leads 33 of each set are bent at different angles, and are clearly not parallel.*** Further, due to the inner leads 33 of each set being bent at differing angles, they are not linearly aligned, nor do they extend in opposed relation to respective ones of the inner leads 33 of another set.

In response to Appellant's aforementioned position, the Examiner further submits in the Advisory Action of April 6, 2005 that this is not persuasive based on the Examiner's view that the inner *"portions"* 33a of the leads 33 are linearly aligned and arranged in spaced, generally parallel relation to each other. The Examiner further submits that the claim language does not require the entire length of the lead to be generally parallel, and thus, "a portion" 33a reads on the claim limitations.

Appellant respectfully disagrees. In this regard, Appellant's independent Claims 24 and 28 each recite, <u>inter alia</u>, . . . a plurality of ***leads*** extending from the tie bar in isolation from each other and segregated into two sets, the ***leads*** of each set being linearly aligned and arranged in spaced, generally parallel relation to each other such that each of the leads of one set extends in opposed relation to a respective one of the leads of the remaining set,

. . .

Appellant submits that the aforementioned language of Claims 24 and 28 makes clears that the ***leads as a whole, and not just portions of the leads*** (as the Examiner contends), are linearly aligned and arranged in generally parallel relation to each other so as to be extensible in opposed relation to respective leads of the remaining set. Had Appellant intended otherwise, it would have presented Claims 24 and 28 to recite "*at least portions* of the leads of each set being linearly aligned..." Thus, Appellant respectfully submits that the Examiner has misinterpreted the aforementioned claim language.

Because ASANO fails to disclose at least the above noted features of the present invention, Appellant submits that ASANO fails to disclose each and every recited feature of the present invention, and that the Examiner has failed to establish an adequate evidentiary basis to support a rejection of anticipation under 35 U.S.C. § 102(b). Therefore, Appellant respectfully submits that the Examiner's rejection of independent Claims 24 and 28 is improper and should be withdrawn.

Accordingly, Appellant respectfully requests the Board to reverse the rejection of independent Claims 24 and 28 under 35 U.S.C. § 102(b), and to remand the subject application to the Examiner with instructions to allow Claims 24-31.

Appellant's Dependent Claims 25-27 and 29-31

Further, Appellant submits that Claims 25-27 and 29-31 are allowable at least for the reason that these claims depend from allowable base claims and recite additional features that further define the present invention.

Accordingly, Appellant respectfully requests that the Board reverse the rejection of dependent Claims 25-27 and 29-31 under 35 U.S.C. § 102(b), and to remand the subject application to the Examiner with instructions to allow such claims.

Traversal of Rejections under 35 U.S.C. § 103(a)

(B). The rejection of Claims 14-23 under 35 U.S.C. § 103(a) as being unpatentable over LEE in view of HUANG is in error, the rejection should be reversed, and the subject application should be remanded to the Examiner with instructions to allow Claims 14-23.

The Examiner's Rejection of Independent Claim 14

The Examiner submits in the Final Office Action of January 7, 2005 that LEE discloses a semiconductor package in Fig. 7 comprising: a lead frame 1 (col. 4, line 7), comprising a plurality of leads 6 (col. 4, lines 15-16) segregated into two sets (Fig. 7), the leads of each set being linearly aligned and arranged in spaced, generally parallel relation to each other such that each of the leads of one set extends in opposed relation to a respective one of the leads of the remaining set (Fig. 7), each of the leads defining opposed, generally planar top and bottom sides, a semiconductor chip 3 (col. 4, line 11), having a top surface and a bottom surface, the bottom surface partially overlapping and attached to the top side of at least one of the leads 6 of each of the sets, the semiconductor chip being electrically connected to a portion of the top side of at least one of the leads 6 which is positioned below the top surface (Fig. 7); and a sealing material 13 (col. 4, line

17), at least partially encapsulating the lead frame 1 and the semiconductor chip 3, the sealing material 13 having opposed, generally planar upper and lower surfaces (Fig. 7).

However, the Examiner admits that LEE does not disclose the bottom side of each of the leads being generally co-planar with the lower surface of the sealing material 13. To satisfy this feature, the Examiner cites HUANG and states that HUANG discloses a semiconductor package in Fig. 8 wherein the bottom side of each of the leads 326 (col. 5, line 7) is generally co-planar with the lower surface of the sealing material 332 (col. 5, line 9). The Examiner then submits that at the time the invention was made, it would have been obvious to one of ordinary skill in the art to use the co-planar surface teaching of HUANG with the LEE device, because it would have allowed further attaching other elements such as a heat spreader for better heat dissipation as taught by HAUNG (col. 5, lines 31-35).

A Review of LEE

LEE provides a lead frame 1 and a semiconductor package (see Fig.'s 6-7) using the lead frame 1 in which one lead frame can be used to perform the package process regardless of the size of a chip 3. The size of the chip 3 can be varied within the limit that the number of bonding pads 5 of the chip does not exceed the number of corresponding inner leads 6. The lead frame 1 includes a plurality of tie bars 2 extended toward the center from edges of a lead frame body, a die pad 4 supported by the tie bars 2 on which a semiconductor chip 3 can be bonded and a plurality of inner leads 6 disposed around the die pad 11. The tie bars 2, the die pad 4 and the inner leads are electrically coupled with bonding pads of the chip 3. A plurality of outer leads 7 are respectively coupled with the inner leads 6 and exposed outside a molded body 13.

A Review of HUANG

HUANG provides a quad flat non-lead semiconductor package (see Fig.'s 3-8) which comprises a chip 208, a plurality of leads 202, and a molding compound 218. The chip 208 has its active surface 210a bonded to the die pad 200, 228, 318 which has an area smaller than that of the chip 208 in order to expose the bonding pads 212 on the active surface 210a of the chip 208. The leads 202 are disposed at the periphery of the die pad. A plurality of bonding wires 216 are used to electrically connect the top surfaces 206a of the leads 202 to the bonding pads 212. The molding compound 218 encapsulates the chip 208, the die pad 200, 228, 318, the bonding wires 216, and portions of the leads 202.

Appellant's Independent Claim 14

Appellant's independent Claim 14 recites, *inter alia*, . . . *a leadframe comprising a plurality of leads segregated into two sets, the leads of each set being linearly aligned and arranged in spaced, generally parallel relation to each other such that each of the leads of one set extends in opposed relation to a respective one of the leads of the remaining set* . . . Appellant respectfully submits that the aforementioned features recited in independent Claim 14 are not taught or suggested by LEE or HUANG, whether considered individually or in combination.

In LEE, the inner leads of each set are not linearly aligned and arranged in spaced, generally parallel relation to each other.

In the LEE reference, the inner leads 6 of each set are not, in their entirety, linearly aligned and arranged in spaced, generally parallel relation to each other such that each of the

inner leads 6 of one set extends in opposed relation to a respective one of the inner leads 6 of another set. Rather, as is readily apparent from Figure 5 of LEE, though the inner leads 6 are segregated into multiple sets, ***none of the inner leads 6 of any set extend in spaced, generally parallel relation to each other. Instead, the inner leads 6 of each set are bent at different angles, and are clearly not parallel.*** Further, due to the inner leads 6 of each set being bent at differing angles, they are not linearly aligned, nor do they extend in opposed relation to respective ones of the inner leads 6 of another set.

In response to Appellant's aforementioned position, the Examiner indicates in the Advisory Action of April 6, 2005 that this is not persuasive since portions of the inner leads 6 are linearly aligned and arranged in spaced, generally parallel relation to each other, with the claim language not requiring the entire length of the lead to be generally parallel.

Appellant respectfully disagrees for the same reasons discussed at length in relation to Claims 24 and 28. In this regard, Appellant's independent Claim 14 recites, *inter alia*, . . . a plurality of ***leads*** segregated into two sets, the leads of each set being linearly aligned and arranged in spaced, generally parallel relation to each other such that each of the ***leads*** of one set extends in opposed relation to a respective one of the leads of the remaining set . . .

Appellant submits that the aforementioned language of Claim 14 makes clears that the ***leads as a whole, and not just portions of the leads*** (as the Examiner contends), are linearly aligned and arranged in generally parallel relation to each other so as to be extensible in opposed relation to respective leads of the remaining set. Had Appellant intended otherwise, it would have presented Claim 14 to recite "*at least portions* of the leads of each set being linearly aligned..." Thus, Appellant respectfully submits that the Examiner has again misinterpreted the aforementioned claim language.

Therefore, Appellant submits that even if the manner in which the Examiner proposes to combine LEE with HUANG is proper (which Appellant disputes), the invention recited in independent Claim 14 still does not result, and therefore, the rejection of Claim 14 under 35 U.S.C. § 103(a) is improper.

Accordingly, Appellant respectfully requests that the Board reverse the rejection of independent Claim 14 under 35 U.S.C. § 103(a), and remand the subject application to the Examiner with instructions to allow Claim 14.

Appellant's Dependent Claims 15-23

Further, Appellant submits that Claims 15-23 are allowable at least for the reason that these claims depend from an allowable base claim and recite additional features that further define the present invention.

Accordingly, Appellant respectfully requests that the Board reverse the rejection of dependent Claims 15-23 under 35 U.S.C. § 103(a), and remand the subject application to the Examiner with instructions to allow such claims.

CONCLUSION

In view of the foregoing, it is submitted that none of the references of record, when considered either alone or in any proper combination thereof, anticipate or render obvious the Appellant's invention as recited in Claims 14-31. The applied references of record have been discussed and distinguished, while significant claimed features of the present invention have been pointed out.

Appellant respectfully submits that each and every pending claim of the present invention meets the requirements for patentability under 35 U.S.C. §§ 102 and 103, and requests that all of the aforementioned rejections be reversed by the Board, and that the application be remanded to the Examiner for withdrawal of all the rejections.

Accordingly, allowance of the present application and all the claims therein is respectfully requested and believed to be appropriate.

Respectfully submitted,

Date: 6/20/05 By: 

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APPENDIX

CLAIMS ON APPEAL

14. A semiconductor package, comprising:

a leadframe comprising a plurality of leads segregated into two sets, the leads of each set being linearly aligned and arranged in spaced, generally parallel relation to each other such that each of the leads of one set extends in opposed relation to a respective one of the leads of the remaining set, each of the leads defining opposed, generally planar top and bottom sides;

a semiconductor chip having a top surface and a bottom surface, the bottom surface partially overlapping and attached to the top side of at least one of the leads of each of the sets, the semiconductor chip being electrically connected to a portion of the top side of at least one of the leads which is positioned below the top surface; and

a sealing material at least partially encapsulating the leadframe and the semiconductor chip, the sealing material having opposed, generally planar upper and lower surfaces such that the bottom side of each of the leads is generally co-planar with the lower surface of the sealing material.

15. The semiconductor package of Claim 14 wherein:

each of the leads further defines an inner end and a notched surface which is disposed in opposed relation to the bottom side and extends to the inner end;

each of the leads has a first thickness between the top and bottom sides which exceeds a second thickness between the bottom side and the notched surface; and

the semiconductor chip partially overlaps and is attached to the notched surface of at least one of the leads of each of the sets.

16. The semiconductor package of Claim 15 wherein the semiconductor chip is electrically connected to the top side of at least one of the leads via a conductive wire which is covered by the sealing material.

17. The semiconductor package of Claim 15 wherein the semiconductor chip is electrically connected to the notched surface of at least one of the leads via a solder ball which is covered by the sealing material.

18. The semiconductor package of Claim 15 wherein the notched surfaces of the leads extend in generally co-planar relation to each other.

19. The semiconductor package of Claim 14 wherein:

each of the leads further defines an inner end and a notched surface which is disposed in opposed relation to the top side and extends to the inner end; and

each of the leads has a first thickness between the top and bottom sides which exceeds a second thickness between the top side and the notched surface.

20. The semiconductor package of Claim 19 wherein the semiconductor chip is electrically connected to the top side of at least one of the leads via a conductive wire which is covered by the sealing material.

21. The semiconductor package of Claim 14 wherein:

each of the leads further defines an outer end; and

the sealing material encapsulates the leadframe such that the outer end of each of the leads is exposed within the sealing material.

22. The semiconductor package of Claim 14 wherein the bottom sides of the leads extend in generally co-planar relation to each other.

23. The semiconductor package of Claim 14 wherein the top sides of the leads extend in generally co-planar relation to each other.

24. A leadframe comprising:

a peripheral tie bar; and

a plurality of leads extending from the tie bar in isolation from each other and segregated into two sets, the leads of each set being linearly aligned and arranged in spaced, generally parallel relation to each other such that each of the leads of one set extends in opposed relation to a respective one of the leads of the remaining set, each of the leads defining:

opposed, generally planar top and bottom sides;

an inner end; and

a notched surface which is disposed in opposed relation to the bottom side and extends to the inner end;

each of the leads having a first thickness between the top and bottom sides which exceeds a second thickness between the bottom side and the notched surface.

25. The leadframe of Claim 24 wherein the notched surfaces of the leads extend in generally co-planar relation to each other.

26. The leadframe of Claim 24 wherein the bottom sides of the leads extend in generally co-planar relation to each other.

27. The leadframe of Claim 24 wherein the top sides of the leads extend in generally co-planar relation to each other.

28. A leadframe comprising:

a peripheral tie bar; and

a plurality of leads extending from the tie bar in isolation from each other and segregated into two sets, the leads of each set being linearly aligned and arranged in spaced, generally parallel relation to each other such that each of the leads of one set extends in opposed relation to a respective one of the leads of the remaining set, each of the leads defining:

opposed, generally planar top and bottom sides;

an inner end; and

a notched surface which is disposed in opposed relation to the top side and extends to the inner end;

each of the leads having a first thickness between the top and bottom sides which exceeds a second thickness between the bottom side and the notched surface.

29. The leadframe of Claim 28 wherein the notched surfaces of the leads extend in generally co-planar relation to each other.

30. The leadframe of Claim 28 wherein the bottom sides of the leads extend in generally co-planar relation to each other.

31. The leadframe of Claim 28 wherein the top sides of the leads extend in generally co-planar relation to each other.